CLAIMS

1.-6. (Canceled)

7. (New) An interpolator, comprising:

a feature extractor to populate a feature table by identifying image features in a pixel array;

a feature comparator to populate a match table by matching features in the feature table.

8. (New) The interpolator of claim 7 where the image features are ramps, edges, segments, or noise.

9. (New) The interpolator of claim 7 where the feature extractor is adapted to be programmable.

10. (New) The interpolator of claim 7 where the image features is adapted to dynamically change according to user preferences.

11. (New) The interpolator of claim 7 where the feature extractor includes a state machine for each image feature.

12. (New) The interpolator of claim 7 where the feature comparator is adapted to match image features in adjacent rows of the pixel array.

13. (New) The interpolator of claim 7 where the feature comparator is adapted to match image features in adjacent columns of the pixel array.

14. (New) The interpolator of claim 7 comprising an alignment controller to align matched image features in the match table.

15. (New) The interpolator of claim 14 where the alignment controller is adapted to compute relative shifts between adjacent rows or columns.

16. (New) The interpolator of claim 14 where the alignment controller is adapted to identify a transition segment.

17. (New) The interpolator of claim 14 where the alignment controller is adapted to identify a pivot pixel.

18. (New) A method for interpolating a target pixel in an array of source pixels comprising:

populating a feature table by identifying image features in the source pixels;

populating a match table by matching features in the feature table; and

generating a target pixel responsive to the matching.

19. (New) The method of claim 18 where identifying image features includes identifying ramps, edges, segments, or noise.

20. (New) The method of claim 18 where identifying image features includes identifying programmable image features.

21. (New) The method of claim 18 where identifying image features includes identifying image features that are dynamically changing according to user preferences.

22. (New) The method of claim 18 where identifying image features includes using a state machine for each image feature.

23. (New) The method of claim 18 where matching features in the feature table includes matching features in adjacent rows of the pixel array.

24. (New) The interpolator of claim 18 where matching features in the feature table includes matching features in adjacent columns of the pixel array.

25. (New) The method of claim 18 comprising aligning matched image features in the match table.

26. (New) The method of claim 25 where aligning includes computing relative shifts between adjacent rows or columns.

27. (New) The method of claim 25 where aligning includes identifying a transition segment.

28. (New) The method of claim 25 where aligning includes identifying a pivot pixel.